

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

**IN THE CLAIMS:**

Please amend the claims as follows:

1. (Currently Amended) A pile anchor foundation for supporting a heavy load from a ground surface comprising a concrete foundation cap having a bottom surface engaged with said ground surface and an upper surface supporting a heavy load connected rigidly thereto and a plurality of elongated pile anchors depending from said cap, each of said pile anchors including being constructed of cementitious material extending into underlying soil a substantial vertical depth below said foundation cap, with a blockout element for creating a void or compressible region area at an upper end ~~thereof~~ of each pile anchor between said cementitious material of each said pile anchor and a bottom surface of said cap, each of said pile anchors further including a tension member anchored thereto and extending upwardly through said respective void or compressible region area and said cap, a lower end of each tension member being anchored in said pile anchor, an upper end of each tension member ~~being threaded and~~ including a post tensioning assembly ~~thereon having a nut that is received on said threaded upper end and~~ which engages an upper surface of said cap to pull said cap downwardly, ~~a length~~ an upper portion of each tension member being movable in relation to said pile anchor and said cap

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

to enable stretching of said tension member when the ~~nut~~ post tensioning assembly on the upper end thereof is tightened downwardly against the cap so that said upper end of the pile anchor moves upwardly into said void or compressible region to at least partially compress said blockout element and said cap is pulled downwardly and compresses underlying soil forming said ground surface, said cap bearing on the underlying compressed soil to withstand overturning and uplifting forces exerted on said cap by said heavy load connected to said cap.

2. (Canceled).

3. (Canceled).

4. (Previously Presented) The foundation as claimed in claim 1 wherein each of said tension members includes a bolt having a sleeve enclosing a substantial length thereof to prevent the portion of the bolt covered by said sleeve from bonding to said pile anchor and cap and facilitating said post tensioning.

5. (Original) The foundation as claimed in claim 1 wherein said foundation cap is generally cylindrical and said elongated

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

pile anchors are circumferentially spaced around said foundation cap.

6. (Original) The foundation as claimed in claim 1 wherein a periphery of each said pile anchor is defined by a corrugated metal pipe for a substantial length thereof.

7. (Original) The foundation as claimed in claim 1 wherein a periphery of said concrete foundation cap is defined by a corrugated metal pipe.

8. (Currently Amended) A foundation for supporting a tower subject to high overturn loads which comprises a concrete cap defined by vertically spaced top and bottom surfaces and a peripheral wall, said cap adapted to be supported on an upwardly facing soil surface, fastening members rigidly securing a said tower to said cap upper surface, a plurality of pile anchors depending from said bottom surface of said cap in ~~circumferentially~~ spaced relation, said pile anchors positioned in and surrounded by soil underlying said cap with each pile anchor including being ~~constructed of~~ cementitious material and having ~~including~~ an elongated tension bolt anchored therein and extending through said

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

cap, and a ~~nut threaded onto~~ post tensioning assembly cooperating  
with an upper end of each tension bolt and in contact with said top  
surface of said cap to pull said cap downwardly to compress soil  
underlying said cap to resist overturning and uplifting forces  
exerted on said cap by ~~a~~ the supported tower, each of said pile  
anchors including an elongated corrugated pipe substantially filled  
with cementitious material with said tension bolt being generally  
centralized therein, each said tension bolt having a lower end  
anchored in said cementitious material and being sleeved over a  
major portion of its length to prevent bonding with the  
cementitious material of the pile anchor and said concrete cap to  
permit post tensioning of said tension bolts, an uppermost end of  
each of said pile anchor corrugated pipes forming anchors further  
including a void or gap between an upper surface compressible area  
at the upper end of said cementitious material beneath in said pipe  
and a lower surface of said cap, said tension bolt extending from  
said cementitious material of said pile anchor through said void or  
gap and through said cap, said void or gap enabling and surrounding  
said tension bolt to enable the concrete cap to be pulled  
downwardly to compress and consolidate underlying soil to desired  
strengths and permitting and to permit the pile anchors to move  
upwardly upward to develop skin friction resistance against the

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

surrounding soil substantially equal to the pile anchor bolt post tension.

9. (Currently Amended) The foundation as claimed in claim 8 wherein each of said fastening members includes a tower anchor bolt extending downwardly into said concrete cap, an embedment ring extending peripherally in said concrete cap and being positioned adjacent said bottom surface thereof, each of said anchor bolts having a lower end rigidly affixed to said embedment ring to anchor ~~a~~ the supported tower to said cap.

10. (Original) The foundation as claimed in claim 9 wherein each of said anchor bolts include a tubular sleeve extending from said embedment ring to prevent said anchor bolts from bonding to said concrete cap.

11. (Canceled).

12. (Canceled).

13. (Currently Amended) The foundation as claimed in claim 8 wherein said concrete cap includes a grout trough in said top

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

surface to receive and set a supported tower flange in grout in said grout trough by a template bottom ring, removable blackout members supporting said tower flange at spaced points in said trough while grout is poured into the grout trough under the tower flange, leveling nuts on said fastening members engaged with said tower flange to support the tower flange to enable curing of said grout.

14. (Original) The foundation as claimed in claim 13 wherein said leveling nuts can be lowered within void spaces formed by removing said blackout members to enable said tower anchor bolts on which the lowered leveling nuts are threaded to be elongated by post tensioning.

15. (Withdrawn) The method of forming a pile anchor foundation for supporting a heavy load from a ground surface comprising the steps of driving pile anchor pipes into a ground surface, placing pile anchor bolts having sleeves thereon longitudinally in said pipes with the pile anchor bolts extending above an upper end of said pipes, filling the pipes with cementitious material, allowing said cementitious material to cure, placing load anchor bolts generally parallel to said pipe anchor bolts, pouring a concrete

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

cap foundation above the upper ends of said pile anchor pipes and in contact with the upper ends of said sleeved pile anchor bolts and said load anchor bolts, allowing said cap foundation to cure, post tensioning said pile anchor bolts, placing a support flange of a heavy load onto the upper ends of said load anchor bolts and post tensioning said load anchor bolts with said support flange attached thereto.

16. (Withdrawn) The method as claimed in claim 15 wherein the step of pouring the concrete cap foundation includes the step of forming a grout trough in a top surface of said concrete cap foundation with said load anchor bolts extending through said trough, supporting said support flange on said load anchor bolts above a bottom of said grout trough, placing grout in said trough below said support flange, lowering said support flange into said engagement with said grout in said trough after said grout cures and post tensioning said load anchor bolts by nuts threaded thereon and engaging an upper surface of said load flange.

17. (Withdrawn) The method as claimed in claim 15 wherein the step of pouring said cap foundation includes the step of placing crushable material between a bottom surface of said cap foundation

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

and the upper end of the pile anchors to enable downward movement of said cap foundation after curing by tensioning the pile anchor bolts and moving said cap foundation downwardly thereby compressing underlying soils.

18. (Currently Amended) The foundation as claimed in claim [[1]] 6 wherein said blackout element is said uppermost section of said corrugated pipe ~~the compressible area is a void.~~

19. (Currently Amended) The foundation as claimed in claim [[8]] 1 wherein said blackout element is made of foam ~~the compressible area is a void.~~

20. (New) The foundation as claimed in claim 1 wherein said blackout element has a height of less than about two feet.

21. (New) The foundation as claimed in claim 18 wherein said blackout element has a height of less than about two feet.

22. (New) The foundation as claimed in claim 1 wherein an upper end of each tensioning member is threaded and said post tensioning assembly includes a base plate on the upper surface of



Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

said cap and a nut that is received on said threaded end which engages an upper surface of the base plate.

23. (New) The foundation as claimed in claim 8 wherein said corrugated pipe is made of a compressible material such that the uppermost portion of said pipe that surrounds said void or gap is compressed by said post tensioning to allow said upward pile anchor movement.

24. (New) A pile anchor foundation for supporting a heavy load from a ground surface comprising:

a concrete foundation cap having a bottom surface engaged with said ground surface and an upper surface supporting a heavy load connected rigidly thereto; and

a plurality of elongated pile anchors formed in pile holes that extend from said ground surface into underlying soil beneath said foundation cap a substantial vertical depth, each of said pile anchors including a column of cementitious material having an upper surface and extending to a bottom portion of a respective pile hole, said upper surface of said pile anchor cementitious material and an adjacent area of said foundation cap bottom surface being configured to leave a gap or void between said

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

upper surface of said pile anchor cementitious material and said adjacent area of said foundation cap bottom surface, each of said pile anchors including a tension member having a lower portion anchored in said cementitious material and extending upwardly through said respective gap or void and through said cap, an upper end of each tension member including a post tensioning assembly which engages an upper surface of said cap to pull said cap downwardly, an upper portion of each tension member being movable in relation to said pile anchor and said cap to enable stretching of said tension member when the post tensioning assembly on the upper end of said tension member is tightened downwardly against the cap so that said upper surface of said pile anchor cementitious material moves upwardly into said gap or void, thus reducing a vertical extent of said gap or void between the upper surface of said pile anchor cementitious material and the bottom surface of the cap, and thereby transfers stress to the soil surrounding said pile anchor, said cap being pulled downwardly so as to compress soil underlying said ground surface.

25. (New) The foundation as claimed in claim 24 wherein each of said tension members includes a bolt having a sleeve enclosing said upper portion of said tension member to prevent the upper

Serial No.: 10/734,281.  
Atty. Docket No.: P68425US1

portion of the bolt covered by said sleeve from bonding to said pile anchor cementitious material and cap and facilitating said post tensioning.

26. (New) The foundation as claimed in claim 24 wherein said foundation cap is generally cylindrical and said elongated pile anchors are circumferentially spaced around said foundation cap.

27. (New) The foundation as claimed in claim 24 wherein an upper end of each tensioning member is threaded and said post tensioning assembly includes a base plate on the upper surface of said cap and a nut that is received on said threaded end which engages an upper surface of the base plate.

28. (New) The foundation as claimed in claim 24 wherein said void or gap is formed by a compressible blockout element positioned above said upper surface of said pile anchor cementitious material.

29. (New) The foundation as claimed in claim 28 wherein said blockout element is made of foam.

Serial No.: 10/734,281  
Atty. Docket No.: P68425US1

30. (New) The foundation as claimed in claim 24 wherein said void or gap has a blackout element made of a compressible material positioned therein.

31. (New) The foundation as claimed in claim 30 wherein said blackout element has a height of less than about two feet.

32. (New) The foundation as claimed in claim 30 wherein said blackout element is made of foam.